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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,994	06/25/2001	Gianluca Girardi	210183US6X	7037
22850	7590	04/21/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			NGUYEN, TAM M	
			ART UNIT	PAPER NUMBER
			1764	

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/886,994

Applicant(s)

GIRARDI ET AL.

Examiner

Tam M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "the steps are carried out without pressure change" in the last line of the claim was not described in the specification at the time the application was filed.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6 and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Jullian et al. (5,863,315)

Jullian discloses a process for separating of a hydrocarbon mixture (e.g., isopentane) by using an adsorption system which comprises at least three adsorption zones that function similar to the claimed process wherein the mixture of hydrocarbon isomers in gas phase is passed into a

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first adsorption zone to produce a first effluent which is then passed into a second adsorption zone. A mixture of desorbent remaining and isomers with a lower selectivity is discharged from at least one of the second adsorption zone. A desorbing agent is fed into at least one of the columns functioning as the desorption zone to produce a mixture of desorbing agent and hydrocarbon isomers with a greater selectivity. The columns are then rotated as from the second adsorption zone to the first adsorption zone and to the desorption zone as claimed. The adsorption zone is operated at a temperature of from 100 to 400° C and at a pressure of from 5 to 40 bars and the desorbent is an aliphatic hydrocarbon which is in vapor phase. (See col. 3, line 15 through col. 7, line 45; figures 1-9 and 13-21)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jullian et al. (5,863,315) in view of Kulprathipanja (5,900,523)

The process of Julian is as discussed above.

Jullian does not specifically disclose steps of recovering desorbent from the raffinate and extract streams and recycling the desorbent for reuse. However, Kulprathipanja discloses steps of recovering desorbent from the raffinate and extract streams by using a distillation process (see col. 7, line 55 through col. 8, line 6). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Julian by separating desorbent from the raffinate and extract streams for reuse as taught by Kulprathipanja because such step is effective to recover desorbent for reuse.

#### *Response to Arguments*

The argument Jullian does not teach feeding an entire effluent of the mixtures of hydrocarbon isomers from at least one of the columns functioning as the primary adsorption device to at least one of the columns functioning as the secondary adsorption device is not

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persuasive because Jullian teaches that the entire effluent or a part of the effluent from the first adsorption zone is fed into the second adsorption zone as claimed. (See figures 1, 4, and 7)

The argument that the combination of Jullian and Kulprathipanja is improper because the hydrocarbon mixture of Jullian in the adsorption zone is in *vapor phase* while the mixture of Kulprathipanja is sent to an adsorption zone in *liquid phase* and the desorbent is not present in the Kulprathipanja feed is not persuasive. The examiner relied upon the Kulprathipanja reference to teach that separating a hydrocarbon (e.g., desorbent) from other hydrocarbons (e.g., raffinate and extract streams), which have different boiling points, by utilizing a distillation process is known in the art. The examiner does not employ the adsorption process of Kulprathipanja in the process of Jullian.

The argument that the desorbent is fed only to three phases out of the nine phases, the extract stream is present only in three phases, and only three out of the nine phases is not persuasive because the desorbent of Jullian is fed into the adsorption zones as claimed in claims 1 and 6.

The argument that Jullian process includes first pressuring, depressurizing, and second pressurizing phases, while the process of claim 1 does not use the pressure changes for adsorption and desorption is noted. However, the argument is not persuasive because claims 1-12 do not exclude the pressure changes in the adsorption and desorption steps.

The argument that in two examples of Jullian, a recovering of i-paraffin equal to 59.4% and 56.7% with a title respectively equal to 88.6 and 87.1% is obtained, while the example according to the process of claim 1, a recovery of ethylbenzene of 56% with title of 99.9% is obtained is not persuasive because it unclear if the two sets of experiments (Jullian and the

present invention) are operated at the same conditions and these conditions are not included in claim 1 and the degree of purity of the product is also not in claim 1. Since the claimed process and the process of Jullian are similar, it would be expected that the Jullian process would provide similar results as claimed.

### *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tam M. Nguyen whose telephone number is (571) 272-1452. The examiner can normally be reached on Monday through Thursday.

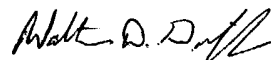
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tam M. Nguyen  
Examiner  
Art Unit 1764

TN  
4/15/04

  
**Walter D. Griffin**  
Primary Examiner